

**U.S. ENVIRONMENTAL PROTECTION AGENCY  
POLLUTION REPORT**

**I. HEADING**

**DATE:** 2/27/98  
**SUBJECT:** Naples Truck Stop Removal Action, Vernal, UT  
**FROM:** H. Hays Griswold, OSC Phone: (303) 312-6809  
**TO:** Director, ERD  
**POLREP No.:** POLREP 55

**II. BACKGROUND**

**SITE No.:** 43P808L008  
**Case No.:** U940169  
**FPN No.:** 114009  
**D.O. No.:** NA  
**Response Agency:** EPA Region VIII  
**Address:** 999 18th Street, Suite 500  
Denver, CO 80202  
**Response Authority:** CWA, OPA (1990)  
**Party Conducting Action:** EPA (PRFA w/USACE)  
**ERNS No.:** U940169  
**NPL Status:** NA  
**State Notification:** State requested EPA action  
**Action Memorandum Status:** NA  
**Start Date:** February 22, 1994  
**Demobilization Date:** NA  
**Completion Date:** To Be Determined

**III. SITE INFORMATION**

**A. Incident Category**

The incident occurred at an active facility - a Service Station/Truck Stop/Petroleum Bulk Distributor.

**B. Site Description**

**1. Site Description**

No change from previous Polreps.

**2. Description of Threat**

No change.

### **C. Site Evaluation Results**

Monthly groundwater sampling from **fourteen** of the fifteen existing monitoring wells continues to indicate detectable levels of hydrocarbon contamination within **six** of the tested wells. A maximum concentration of 24 mg/L hydrocarbons as gasoline was detected from monitoring well No. MW10 located in the center of the suspected plume of groundwater contamination. This level of contamination is **unchanged** from the 26 mg/L value detected in **January** within the same well. Water analysis was performed for gasoline/BTEX by EPA test methods M8015V and SW8020.

## **IV. RESPONSE INFORMATION**

### **A. Situation**

<b>Date of Notification:</b>	2/08/94
<b>Date of Discovery:</b>	11/01/93
<b>Date Action Started:</b>	2/15/94
<b>Material Involved:</b>	Unleaded Gasoline
<b>Quantity Discharged:</b>	7000 + gallons
<b>Substantial Threat:</b>	Yes
<b>Resource Affected:</b>	Unnamed tributary to Ashley Creek, tributary to Green River
<b>Source Identification:</b>	Naples Truck Stop

#### **1. Removal Actions to Date**

Following a three-month winter shutdown, removal of contaminated water and soil vapor will continue through operation of the dual-phase groundwater pump-and-treat system.

In **February** 1998, no groundwater was extracted or discharged to the POTW due to scheduled winter shutdown.

#### **2. Enforcement**

No change from previous Polreps.

### **B. Planned Removal Actions**

Continue scheduled system shutdown throughout this reporting period, and sample from the groundwater monitoring wells unless notified otherwise by USACE/EPA.

### C. Next Steps

Continue to only monitor the groundwater monitoring wells through February 1998. Sample the groundwater monitoring wells in March 1998 prior to scheduled winter shutdown period. Restart the groundwater extraction and treatment system in March 1998. Resume monthly sampling and analysis of soil vapor samples at the exhaust of the water treatment system, groundwater monitoring wells, and effluent to POTW water samples to ensure water can be directly discharged to POTW without treatment.

### D. Key Issues

Table 1 shows preliminary results of water sampling from the monitoring wells for February 1998 and final results for January 1997.

Table 1- Hydrocarbon Concentrations (as Gasoline)		
Well No.	TPH Concentration in January 1998 (mg/L)	TPH Concentration in February 1998 (mg/L)
MW01	NA	NA
MW02	2.5	3.2
MW03	NA	NA
MW04	1.4	1.9
MW06	NA	NA
MW08	2.8	2.5
MW09	1.8	1.7
MW10	24	24
MW14	NA	NA
MW15	NA	NA
VMP01	ND	ND
VMP02	3.7	4.1
NGMW01	NA	NA
NGMW06	NA	NA

ND not detected, detection limit is 0.04 mg/L

## V. COST INFORMATION

Project Ceiling .....\$ 2,350,000.00

	<u>Costs to Date</u>	<u>Ceiling</u>
<u>Extramural</u>		
TAT	\$ 60,000	\$ 70,000
USACE (Omaha)	\$ 850,000	\$ 1,300,000
USACE (Sacramento)	\$1,049,629	\$ 1,366,929
<u>Intramural</u>		
Direct Reimbursable	\$ 9,000	\$ 30,000
Direct Recoverable	\$ 9,000	

The above accounting of expenditures is an estimate based on figures known to the OSC at the time this report is written. The cost accounting provided in this report does not necessarily represent an exact monetary figure which the government may include in any claim for cost recovery.

### REMOVAL CONTINUES:

H. Hays Griswold, OSC  
1500 hrs, February 27, 1998

c: Rich Haavisto, USACE-Sacramento  
Larry Leahy, USACE-Omaha  
Mike Sajadi, JEG

Al Meyers, IT Corp.  
Renee Zollinger, Kleinfelder

## **ATTACHMENT A**

### **QUARTERLY MONITORING RESULTS FOR NOVEMBER & DECEMBER 1997, AND JANUARY 1998**

#### **TABLE OF CONTENTS:**

- I. Standard List of Abbreviations
- II. Data Quality Assessment
- III. Summary of Analytical Data from Site Monitoring Wells
- IV. Summary of Analytical Data from Site Treatment System
- V. Graphical Representation of Monitoring Well Concentrations Over Time
- VI. Graphical Representation of Water Treatment Concentrations Over Time
- VII. Graphical Representation of Vapor Treatment Concentrations Over Time
- VIII. Summary of Quarterly Monitoring Results

## PART I

### Standard List of Abbreviations

AG	Ambient Air
BZ	Benzene
BZME	Toluene
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
COC	Chain of Custody
DIESELCOMP	Total Hydrocarbons as Diesel
DQA	Data Quality Assessment
EBZ	Ethylbenzene
EPOTW 01	Water Effluent to POTW Sample
FD1	Field Duplicate Sample
HC	Hydrocarbons
J	Indicates an Estimated Value
LCS	Laboratory Control Samples
MG/L	Milligram Per Liter
MS/MSD	Matrix Spike/Matrix Spike Duplicate
MW	Monitoring Well Installed by IT Corp
NA	Not Applicable
NGMW	Monitoring Well Installed by EPA
N1	Normal Type Sample
NJ	Indicates Presumptive Evidence of the Presence of the Analyte
PHCG	Petroleum Hydrocarbons as Gasoline
PPBV	Parts Per Billion by Volume
PPMV	Parts Per Million by Volume
QA/QC	Quality Assessment/Quality Control
RC	Reason Code
RPD	Relative Percent Difference
RQL	Reporting Quantitation Limit
SOP	Standard Operating Procedure
TB1	Trip Blank Sample WG

## **PART I**

### **Standard List of Abbreviations (continued)**

THCHX	Total Hydrocarbon Hexane
UG/L	Micrograms Per Liter
U	Indicates the Analyte was not Detected and the Associated Value is the Laboratory Reporting Quantitation Limit
USACE	United States Army Corps of Engineers
VEATM 01	Vapor Effluent to Atmosphere Sample
VEBIO 01	Vapor Effluent Sample
VIBIO 01	Vapor Influent Sample
VMP01	Vapor Monitoring Well
WEBIO 01	Water Effluent Sample
WIBIO 01	Water Influent Sample
WG	Groundwater Sample
WQ	Water Quality Sample
WW	Waste Water Sample

## PART II

### Data Quality Assessment

This data quality assessment (DQA) for the Naples Truck Stop System is applicable to the analytical results for the following groundwater and vapor samples (listed in Table 1) collected during the months of November and December 1997, and January 1998 (one monthly sample from each location). The vapor stack sample (STACK01) was added to monitor the effluent emissions from the vapor treatment system, in accordance with Utah regulations.

TABLE 1 - SAMPLE LOCATION SUMMARY		
Sample Location Name	Sample Location ID	Number of Locations
Groundwater Monitoring Wells	MW01 - 04, 06, 08 - 10, 14, 15, and NGMW01 & 06	twelve groundwater (GW) wells
Effluent to POTW01	EPOTW01	one GW port
Vapor Monitoring Point #1	VMP01	one GW port
Vapor Monitoring Point #2	VMP02	one GW port
Vapor Influent to First BioTank	VIBIO01	one vapor port
Vapor Stack Sample	STACK01	one vapor port

Vapor monitoring point #2 was not collected during the December sampling event. Vapor monitoring samples were not collected in the January sampling event (the system was off). Effluent to POTW01, groundwater monitoring wells 1, 3, 6, 14, 15, NGMW01, and NGMW06 were not collected during the January sampling event.

The groundwater samples were analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX) by Method SW8020, and total volatile petroleum hydrocarbons (TVPH) as gasoline by Method M8015V. All method defined QA/QC requirements specified in SW-846 Test Methods for Evaluating Solid Waste Physical (Chemical Methods, US EPA, January 1995, 3rd edition, Updates I, II, IIA, and IIB) were followed. The groundwater samples for the November and December sampling events were analyzed by EMAX Laboratories of Torrance, California. The groundwater samples for the January sampling events were analyzed by Quanterra Incorporated of Santa Ana, California.

The vapor samples were collected in SUMMA canisters and analyzed for BTEX and TVPH as using elements specified in the EPA Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air (April 1984) by Method MTO-3S (modified for this analysis). These samples were analyzed by Air Toxics, LTD. of Folsom, California.

The data are of acceptable quality and are considered usable to support the U.S. Army Corps of Engineers (USACE), Naples Utah Truck Stop Project. The precision, accuracy, and completeness objectives for this sampling event were met. Table 4 (A & B) shows the sampling and analytical completeness. Completeness is measured in two ways; 1) sampling completeness (samples collected vs. planned), and 2) analytical completeness (percent of acceptable (non-rejected) analytical results vs. the total number of results reported).



## Data Evaluation Process

The sample data was organized into work orders. A work order number is assigned by the laboratory and contains data for all environmental samples received by the laboratory on a given day. Data verification was performed in accordance with the general principles defined in the Jacobs Data Verification Standard Operating Procedure (SOP). Analytical results for the sample locations listed in Table 1 were reported in the work orders listed in Table 2.

TABLE 2 - SAMPLE WORK ORDERS		
Lab / Work Order Number	Matrix	Analytical Method
EMAX / 97K044	water	M8015V & SW8020
ATL / 9711121	vapor	MTO-3S (modified)
EMAX / 97L019	water	M8015V & SW8020
ATL / 9712062	vapor	MTO-3S (modified)
QUANTERRA / 130275	water	M8015V & SW8020

The following quality control (QC) parameters were evaluated:

- holding times
- laboratory method blanks
- trip blanks (TB)
- surrogate recoveries
- matrix spike and matrix spike duplicate (MS/MSD) recoveries
- laboratory control sample and laboratory control duplicate (LCS/LCD) recoveries
- field duplicate (FD) precision

All results, including data qualifier flags, are presented in Part III (Tables 1 and 2), Summary of Analytical Data from Site Monitoring Wells in Part IV (Tables 3, 4, and 5), and Summary of Analytical Data from Site Treatment System in Attachment A. All analytical results that required the addition of a qualifier flag based on the evaluation process are discussed below. Table 3, in this section, provides a summary of all qualified data. When a result is qualified, a reason code (RC) is also added to the affected sample result and both the qualifier and reason code are entered into the database. The qualifier flags and reason codes used for the Naples project results are summarized below:

### Qualifier Flags

J = indicates an estimated value

### Reason Codes

T = trace concentration detected

1 = Hold time violation

### Holding Times

All samples were analyzed within the technical holding time limits, except for the re-analysis of benzene in vapor monitoring point #2 (from January sampling event). The initial result for benzene in this sample was reported at 1,100 µg/L, which was above the calibration range. The re-analysis for benzene could not be performed within holding time, but the sample was re-analyzed within 1.5 times the hold time. The benzene concentration from the re-analysis was reported at 1,600 µg/L from a 1/20 dilution. The re-analysis result was within

the calibration range of the instrument, and therefore should be more accurate than the initial result. The benzene was 'J' qualified (estimated) with a '1' reason code (see Table 3).

### **Laboratory Method Blanks**

All laboratory method blanks were analyzed at the required frequency and all were free of contamination at the method detection limit (MDL).

### **Field Blanks**

Trip blanks were collected and analyzed with the associated groundwater samples for each monthly monitoring event. All trip blanks were free of contamination at the MDL.

### **Surrogates**

For methods M8015M and SW8020, surrogate compounds are added to each groundwater sample to measure method performance and possible matrix effect. Recoveries were all within the control limits listed in Table 4A of the Quality Assurance Project Plan (QAPjP - Quanterra Santa Ana, June 1995). For method MTO-3S, the addition of surrogates is not required.

### **Laboratory Control Samples**

The LCS is the primary measure of accuracy and monitors overall method performance by the laboratory, independent of matrix effects. The laboratory analyzed LCS and LCS Duplicate samples at the appropriate frequency with each analytical batch for the three groundwater work orders. All spike recoveries were within the control limits specified in Table 5A of the QAPjP. For precision the relative percent difference (RPD) between the LCS and LCS Duplicate is measured. All the RPD values were within the project precision requirements listed in Table 5B of the QAPjP.

### **Matrix Spike/ Matrix Spike Duplicates**

The MS/MSD pair is used to measure precision and assess matrix effects. MS/MSD pairs were not requested by the field sampling crew, but the laboratory performed LCS Duplicates with all analytical batches to provide a measure of precision. Field duplicate samples were also evaluated to access measure precision within each work order. This follows the guidelines specified in the QAPjP. MS/MSD pairs were not required for the vapor samples.

### **Field Duplicates**

Field duplicates are collected to measure field sampling precision and laboratory precision. Duplicate samples were sampled at a frequency of one per sampling event or 7 percent for methods M8015V and SW8020. Field duplicates were not collected for method MTO-3S due to the small number of samples (two per event). The field duplicate precision objective (maximum RPD) is 40% for groundwater samples, this was met for all field duplicate pairs collected.

### Preliminary Result Corrections

There are no discrepancies between the quarterly report and the monthly reports.

### Trace Values

Seven sample results reported by Method SW8020 and two sample results reported by Method MTO-3S were qualified as estimated values (J-flag, reason code T) because the reported concentrations were greater than the method detection limit (MDL), but less than the practical quantitation limit (PQL) see Table 3.

Table 3 - SUMMARY OF QUALIFIED DATA						
Location Id	Lab Sample Number	Date Sampled	Matrix	Method	Analyte	Result Value *, Qualifier & Reason Code
MW01	97L019-01	3-Dec-97	water	SW8020	xlenes	1.24 J(T)
MW06	97L019-05	3-Dec-97	water	SW8020	xlenes	0.794 J(T)
MW08	97L019-06	3-Dec-97	water	SW8020	toluene	2.86 J(T)
MW09	97L019-07	3-Dec-97	water	SW8020	toluene	0.686 J(T)
MW09	97L019-07	3-Dec-97	water	SW8020	xlenes	2.38 J(T)
VMP01	97L019-12	3-Dec-97	water	SW8020	xlenes	0.806 J(T)
NGMW01	97L019-13	3-Dec-97	water	SW8020	xlenes	0.816 J(T)
VMP02	130275-07	14-Jan-98	water	SW8020	benzene	1600 J(1)
STACK01	9712062-02A	3-Dec-97	vapor	MTO-3S	benzene	0.006 J(T)
STACK01	9712062-02A	3-Dec-97	vapor	MTO-3S	toluene	0.004 J(T)

\* SW8020 units are µg/L, MTO-3S units are ppmv.

### Completeness

Overall sampling and analytical completeness objectives (90 percent) were met for all analytical methods (see Table 4(A) and 4(B)).

TABLE 4 (A) - SAMPLING COMPLETENESS	
Sample Event	Groundwater Pump & Treat System, Naples Truck Stop
Laboratory	EMAX Laboratories, Quanterra Inc., and Air Toxics, LTD.
Matrix	Groundwater & Soil Vapor
Analytical Methods	MTO-3S, M8015V, & SW8020 (BTEX)
Sampling Period	Nov and Dec 1997, and Jan 1998
Total Number of Samples Planned	37
Total Number of Samples Collected	36
Sampling Completeness (%)	97

TABLE 4 (B) - ANALYTICAL COMPLETENESS	
Sample Event	Groundwater Pump & Treat System, Naples Truck Stop
Laboratory	EMAX Laboratories, Quanterra Inc., and Air Toxics, LTD.
Analytical Methods	MTO-3S, M8015V, SW8020 (BTEX)
Sampling Period	Nov and Dec 1997, and Jan 1998
Total Number of Samples Analyzed	36
Total Number of Results Reported	180
Total Number of Results Accepted	180
Total Number of Results Rejected	0
Analytical Completeness (%)	100

\* Table 4(A & B) does not include TBs and FDs.

## **Summary**

The quality of the data is acceptable and all analyte results are usable with only minor qualifications. Most analyte results are qualified as estimated (J) because they are trace level (between the MDL and the PQL). One analyte result is qualified as estimated (J) due to a re-analysis out side of hold time. The original sample was analyzed within hold time, but the concentration of benzene exceeded the calibration range of the instrument. The re-analysis result is reported as estimated (J) with reason code 1 (hold time). Precision, accuracy, and completeness objectives were met for all analytes.

## **PART III**

### **Summary of Analytical Data from Site Monitoring Wells**

**Analytical Data Summary Table 1**  
**Monitoring Well Sampling Results Between 1-NOVEMBER-97 and 31-JANUARY-98**

Facility: Naples Truck Stop, Utah

Method: M8015V

Page 1

Location	Sample Date	Matrix	Sample Type	Units	PHCG
MW01	11-Nov-97	WG	N1	MG/L	0.04 U
	03-Dec-97	WG	N1	MG/L	0.04 U
MW02	11-Nov-97	WG	N1	MG/L	1.38
	03-Dec-97	WG	N1	MG/L	1.1
	14-Jan-98	WG	N1	MG/L	2.5
MW03	11-Nov-97	WG	N1	MG/L	0.04 U
	03-Dec-97	WG	N1	MG/L	0.04 U
MW04	11-Nov-97	WG	N1	MG/L	4.56
	03-Dec-97	WG	N1	MG/L	0.61
	14-Jan-98	WG	N1	MG/L	1.4
MW06	11-Nov-97	WG	N1	MG/L	0.04 U
	03-Dec-97	WG	N1	MG/L	0.04 U
MW08	11-Nov-97	WG	N1	MG/L	5.07
	03-Dec-97	WG	N1	MG/L	1.3
	14-Jan-98	WG	N1	MG/L	2.8
MW09	11-Nov-97	WG	N1	MG/L	1.65

**Legend:**

WG = Water

N1 = Environmental Sample

FD1 = Field Duplicate Sample

MG/L = Milligrams per Liter

PHCG = Petroleum Hydrocarbons (Gasoline)

U = Non-detect

**Analytical Data Summary Table 1**  
**Monitoring Well Sampling Results Between 1-NOVEMBER-97 and 31-JANUARY-98**

Facility: Naples Truck Stop, Utah

Method: M8015V

Page 2

Location	Sample Date	Matrix	Sample Type	Units	PHCG
MW09	03-Dec-97	WG	N1	MG/L	0.43
	14-Jan-98	WG	N1	MG/L	1.8
MW10	11-Nov-97	WG	N1	MG/L	28.8
	03-Dec-97	WG	N1	MG/L	26
	14-Jan-98	WG	N1	MG/L	24
MW14	11-Nov-97	WG	N1	MG/L	0.04 U
	03-Dec-97	WG	N1	MG/L	0.04 U
MW15	11-Nov-97	WG	N1	MG/L	0.04 U
	03-Dec-97	WG	N1	MG/L	0.04 U
NGMW01	11-Nov-97	WG	N1	MG/L	0.04 U
	03-Dec-97	WG	N1	MG/L	0.04 U
NGMW06	11-Nov-97	WG	N1	MG/L	0.04 U
	03-Dec-97	WG	N1	MG/L	0.04 U
VMP01	11-Nov-97	WG	N1	MG/L	0.04 U
	03-Dec-97	WG	N1	MG/L	0.04 U
	14-Jan-98	WG	FD1	MG/L	0.02 U
	14-Jan-98	WG	N1	MG/L	0.02 U
VMP02	11-Nov-97	WG	N1	MG/L	15.8

**Legend:**

WG = Water

N1 = Environmental Sample

FD1 = Field Duplicate Sample

MG/L = Milligrams per Liter

PHCG = Petroleum Hydrocarbons (Gasoline)

U = Non-detect

**Analytical Data Summary Table 1**  
**Monitoring Well Sampling Results Between 1-NOVEMBER-97 and 31-JANUARY-98**

Facility: Naples Truck Stop, Utah

Method: M8015V

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Location	Sample Date	Matrix	Sample Type	Units	PHCG
VMP02	14-Jan-98	WG	N1	MG/L	3.7

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**Legend:**

**WG = Water**

**N1 = Environmental Sample**

**FD1 = Field Duplicate Sample**

**MG/L = Milligrams per Liter**

**PHCG = Petroleum Hydrocarbons (Gasoline)**

**U = Non-detect**



**Analytical Data Summary Table 2**  
**Monitoring Well Sampling Results Between 1-NOVEMBER-97 and 31-JANUARY-98**

Facility: Naples Truck Stop, Utah

Method: SW8020

Page 1

Location	Sample Date	Matrix	Sample Type	Units	BZ	BZME	EBZ	XYLENES
MW01	11-Nov-97	WG	N1	UG/L	0.238 U	0.257 U	0.252 U	0.762 U
	03-Dec-97	WG	N1	UG/L	0.238 U	0.257 U	0.252 U	1.24 J:T
MW02	11-Nov-97	WG	N1	UG/L	53	0.514 U	190	1.52 U
	03-Dec-97	WG	N1	UG/L	37.9	1.28 U	166	48.6
	14-Jan-98	WG	N1	UG/L	66	1.1 U	270	270
MW03	11-Nov-97	WG	N1	UG/L	0.238 U	0.257 U	0.252 U	0.762 U
	03-Dec-97	WG	N1	UG/L	0.238 U	0.257 U	0.252 U	0.762 U
MW04	11-Nov-97	WG	N1	UG/L	130	2.57 U	190	200
	03-Dec-97	WG	N1	UG/L	28.9	1.54	92.4	97.5
	14-Jan-98	WG	N1	UG/L	230	18	180	310
MW06	11-Nov-97	WG	N1	UG/L	0.238 U	0.257 U	0.252 U	0.762 U
	03-Dec-97	WG	N1	UG/L	0.238 U	0.257 U	0.252 U	0.794 J:T
MW08	11-Nov-97	WG	N1	UG/L	650	2.57 U	480	170
	03-Dec-97	WG	N1	UG/L	156	2.86 J:T	152	63.2
	14-Jan-98	WG	N1	UG/L	160	1.1 U	120	110
MW09	11-Nov-97	WG	N1	UG/L	230	1.28 U	120	3.81 U
	03-Dec-97	WG	N1	UG/L	82.7	0.686 J:T	60.9	2.38 J:T

**Legend:**

WG = Water

N1 = Environmental Sample

FD1 = Field Duplicate Sample

UG/L = Micrograms per Liter

BZ = Benzene

BZME = Toluene

EBZ = Ethylbenzene

U = Non-detect

J:T = Estimated due to Trace level detection

UJ:2 = Estimated non-detect due to method blank contamination

UJ:7 = Estimated non-detect due to field blank contamination

**Analytical Data Summary Table 2**  
**Monitoring Well Sampling Results Between 1-NOVEMBER-97 and 31-JANUARY-98**

Facility: Naples Truck Stop, Utah

Method: SW8020

Page 2

Location	Sample Date	Matrix	Sample Type	Units	BZ	BZME	EBZ	XYLENES
MW09	14-Jan-98	WG	N1	UG/L	400	1.1 U	140	17
MW10	11-Nov-97	WG	N1	UG/L	14000	430	1700	4600
	03-Dec-97	WG	N1	UG/L	9430	334	1640	4230
	14-Jan-98	WG	N1	UG/L	5100	430	1300	3900
MW14	11-Nov-97	WG	N1	UG/L	0.238 U	0.257 U	0.252 U	0.762 U
	03-Dec-97	WG	N1	UG/L	0.238 U	0.257 U	0.252 U	0.762 U
MW15	11-Nov-97	WG	N1	UG/L	0.238 U	0.257 U	0.252 U	0.762 U
	03-Dec-97	WG	N1	UG/L	0.238 U	0.257 U	0.252 U	0.762 U
NGMW01	11-Nov-97	WG	N1	UG/L	0.238 U	0.257 U	0.252 U	0.762 U
	03-Dec-97	WG	N1	UG/L	0.238 U	0.257 U	0.252 U	0.816 J:T
NGMW06	11-Nov-97	WG	N1	UG/L	0.238 U	0.257 U	0.252 U	0.762 U
	03-Dec-97	WG	N1	UG/L	0.238 U	0.257 U	0.252 U	0.762 U
VMP01	11-Nov-97	WG	N1	UG/L	0.238 U	0.257 U	0.252 U	0.762 U
	03-Dec-97	WG	N1	UG/L	0.238 U	0.257 U	0.252 U	0.806 J:T
	14-Jan-98	WG	FD1	UG/L	0.1 U	0.11 U	0.12 U	0.25 U
	14-Jan-98	WG	N1	UG/L	0.1 U	0.11 U	0.12 U	0.25 U
VMP02	11-Nov-97	WG	N1	UG/L	5400	12.9 U	520	250

**Legend:**

WG = Water

N1 = Environmental Sample

FD1 = Field Duplicate Sample

UG/L = Micrograms per Liter

BZ = Benzene

BZME = Toluene

EBZ = Ethylbenzene

U = Non-detect

J:T = Estimated due to Trace level detection

UJ:2 = Estimated non-detect due to method blank contamination

UJ:7 = Estimated non-detect due to field blank contamination

**Analytical Data Summary Table 2**  
**Monitoring Well Sampling Results Between 1-NOVEMBER-97 and 31-JANUARY-98**

Facility: Naples Truck Stop, Utah

Method: SW8020

Page 3

Location	Sample Date	Matrix	Sample Type	Units	BZ	BZME	EBZ	XYLENES
VMP02	14-Jan-98	WG	N1	UG/L	1600 J :1	1.1 U	140	120

**Legend:**

WG = Water

N1 = Environmental Sample

FD1 = Field Duplicate Sample

UG/L = Micrograms per Liter

BZ = Benzene

BZME = Toluene

EBZ = Ethylbenzene

U = Non-detect

J:T = Estimated due to Trace level detection

UJ:2 = Estimated non-detect due to method blank contamination

UJ:7 = Estimated non-detect due to field blank contamination

## **PART IV**

### **Summary of Analytical Data from Site Treatment System**

**Analytical Data Summary Table 3**  
**Treatment System Sampling Results Between 1-NOVEMBER-97 and 31-JANUARY-98**

Facility: Naples Truck Stop, Utah

Method: MTO-3S

Page 1

Location	Sample Date	Matrix	Sample Type	Units	BZ	BZME	EBZ	PHCG	XYLENES
STACK01	11-Nov-97	GS	N1	PPMV	0.1	0.033	0.024	5.2	0.2
	03-Dec-97	GS	N1	PPMV	0.006 J:T	0.004 J:T	0.007	1.4	0.049
VIBIO01	11-Nov-97	GS	N1	PPMV	19	5.5	3.7	480	31
	03-Dec-97	GS	N1	PPMV	16	3.2	14	1200	70

**Legend:**

GS = Soil Gas

N1 = Environmental Sample

PPMV = Parts per Million Volume

U = Non-detect

BZ = Benzene

BZME = Toluene

EBZ = Ethylbenzene

PHCG = Petroleum Hydrocarbons (Gasoline)

J:T = Estimated due to trace level values

J:T1 or J:1 = Estimated due to holding time violation and/or trace level values

**Analytical Data Summary Table 4**  
**Treatment System Sampling Results Between 1-NOVEMBER-97 and 31-JANUARY-98**

Facility: Naples Truck Stop, Utah

Method: M8015V

Page 1

Location	Sample Date	Matrix	Sample Type	Units	PHCG
EPOTW01	11-Nov-97	WG	FD1	MG/L	1.71
	11-Nov-97	WG	N1	MG/L	2.02
	03-Dec-97	WG	FD1	MG/L	2.1
	03-Dec-97	WG	N1	MG/L	2

**Legend:**

WG = Water

N1 = Environmental Sample

FD1 = Field Duplicate Sample

MG/L = Milligrams per Liter

PHCG = Petroleum Hydrocarbons (Gasoline)

U = Non-detect

**Analytical Data Summary Table 5**  
**Treatment System Sampling Results Between 1-NOVEMBER-97 and 31-JANUARY-98**

Facility: Naples Truck Stop, Utah

Method: SW8020

Page 1

Location	Sample Date	Matrix	Sample Type	Units	BZ	BZME	EBZ	XYLENES
EPOTW01	11-Nov-97	WG	FD1	UG/L	230	73	26	440
	11-Nov-97	WG	N1	UG/L	220	69	26	420
	03-Dec-97	WG	FD1	UG/L	157	19.2	59	830
	03-Dec-97	WG	N1	UG/L	151	18.3	57.2	800

**Legend:**

WG = Water

N1 = Environmental Sample

FD1 = Field Duplicate Sample

UG/L = Micrograms per Liter

BZ = Benzene

BZME = Toluene

EBZ = Ethylbenzene

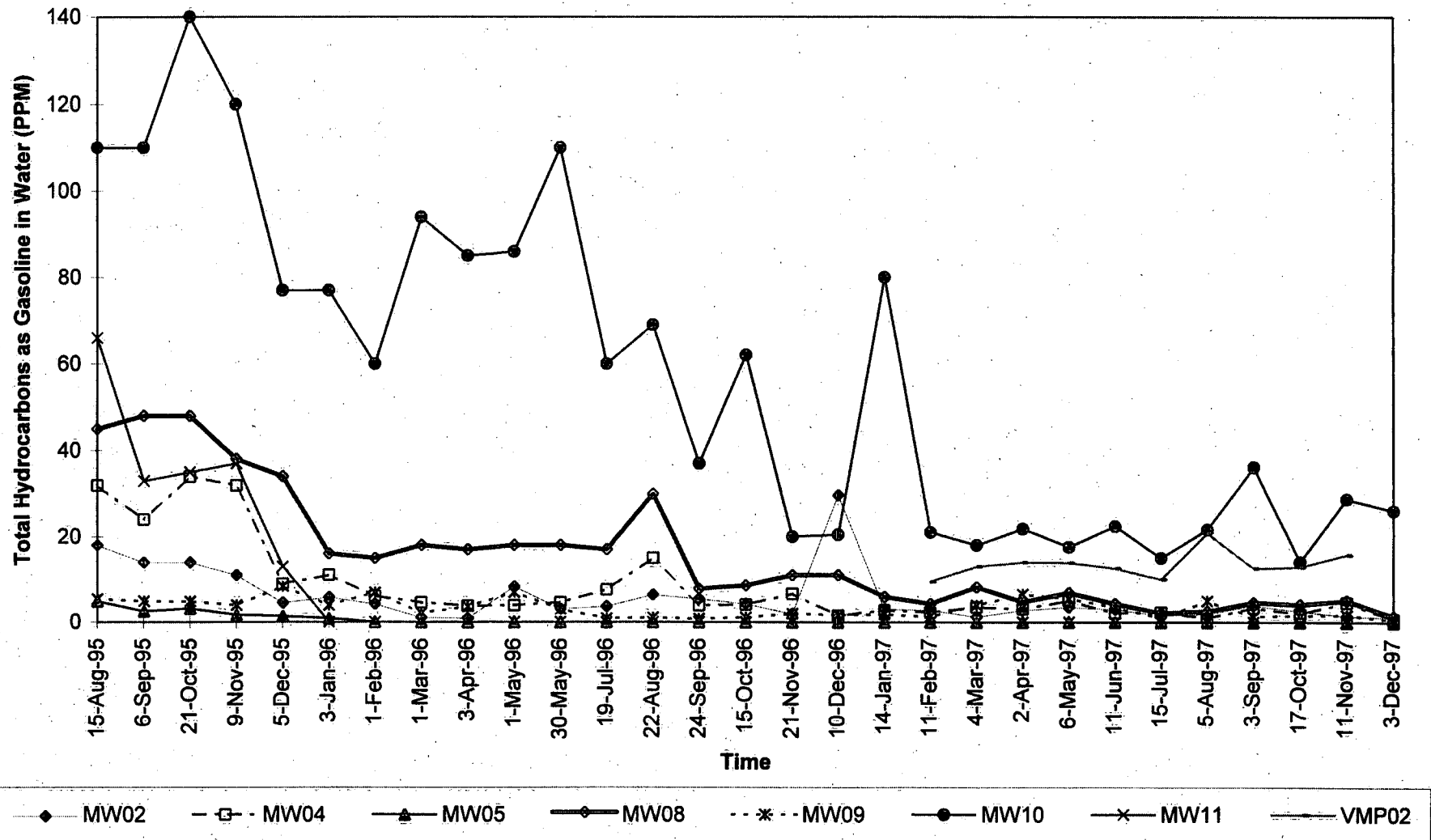
U = Non-detect

J:T = Estimated due to Trace-level detection

UJ:2 = Estimated non-detect due to method blank contamination

UJ:7 = Estimated non-detect due to field blank contamination

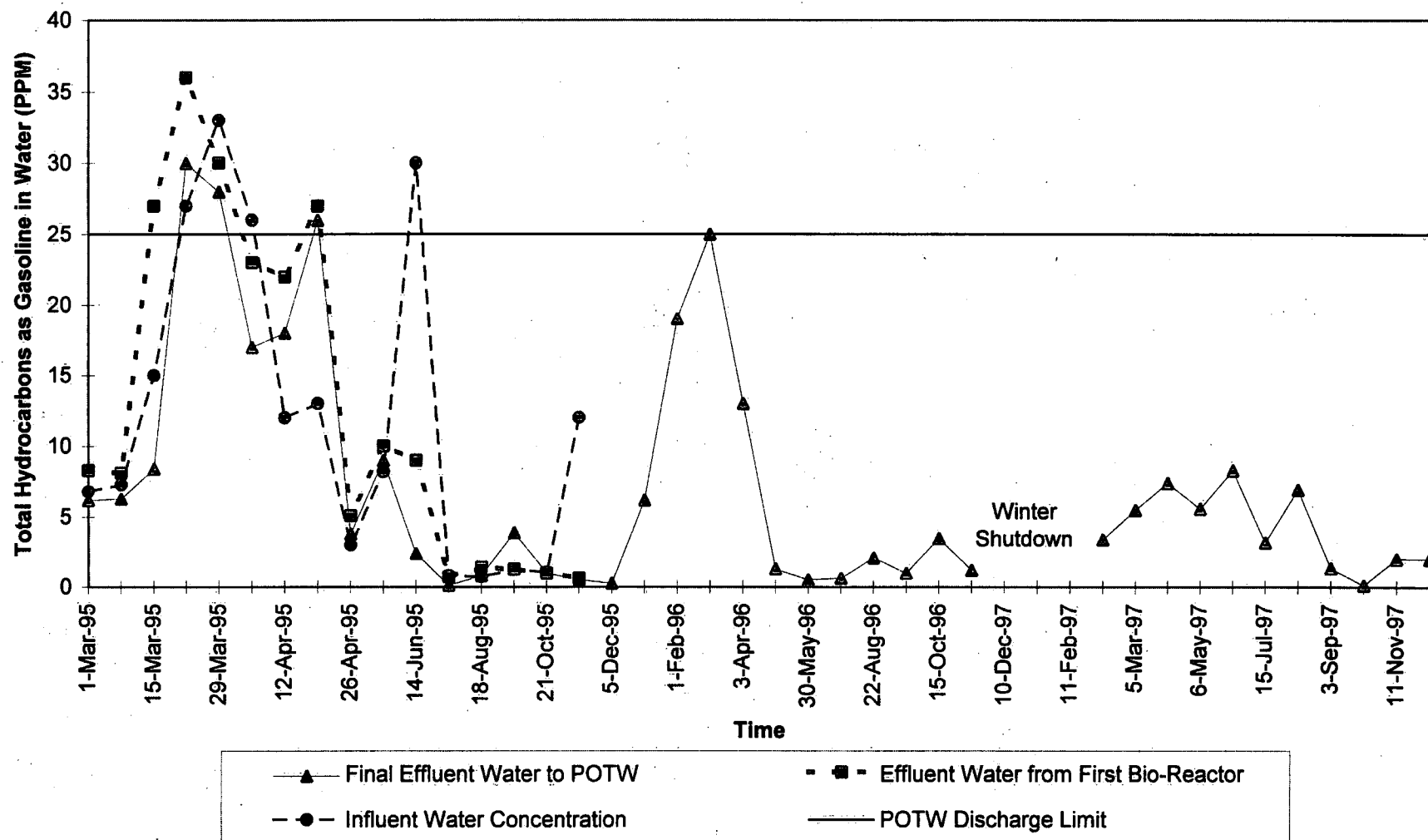
# Part V. Monitoring Well Concentrations Over Time (Since August 1995)



Monitoring Wells Showing Detects

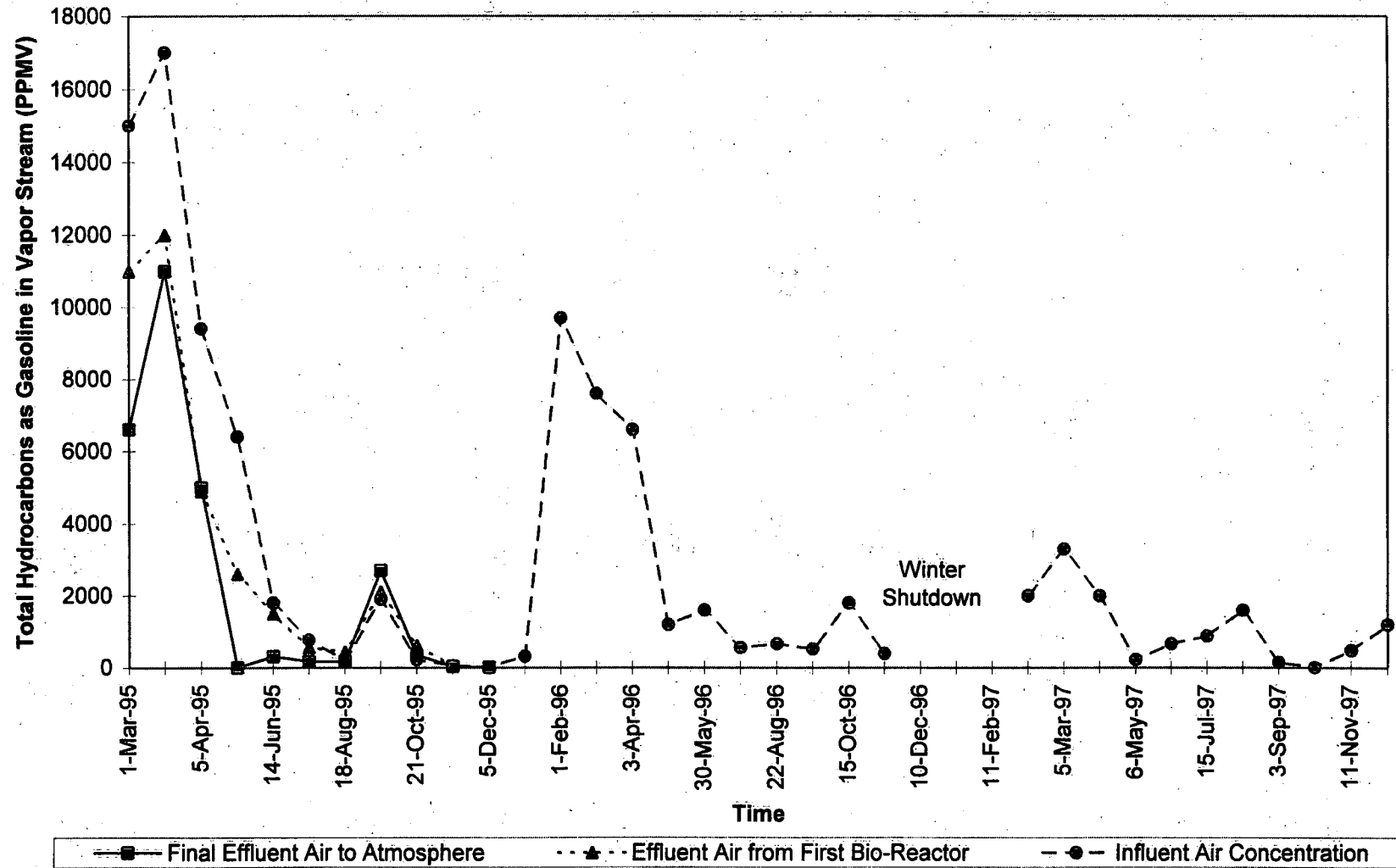


## Part VI. Water Treatment Concentrations Over Time



Effective January 1, 1996 Influent Water and Effluent Water from First Bio-Reactor samples were not collected due to Bio-System bypass

# Part VII.a Vapor Concentrations Over Time



Effective January 1, 1996 Influent Air and Effluent Air from First Bio-Reactor samples were not collected due to Bio-System bypass

## **Part VIII**

### **Summary of Quarterly Monitoring Results**

## PART VIII

### Summary of Quarterly Monitoring Results

This quarterly reports covers the period of operation for November and December 1997, and January 1998. Monthly sampling of groundwater monitoring wells was performed and vapor samples from the treatment system were taken in November and December prior to scheduled winter shutdown.

Results of the data quality assessment included as Part II of this Attachment A indicate the quality of data collected during the quarter is acceptable and all results are usable with only minor qualifications.

#### Groundwater Monitoring/Treatment System Results For Water

Part V presents the graphical results of sampling from up to 14 groundwater monitoring wells during the quarter and Part III the summary of analytical data collected. Detectable concentrations of gasoline and BTEX were measured in 6 of the wells in **November 1997, and January 1998, and 5 of the wells in December 1997**. Concentrations of gasoline were measured by method M8015V and levels of BTEX were measured by method SW8020. All monitoring wells with levels of gasoline contamination greater than the reporting limit as measured by method M8015 were selected for graphical presentation in Part V. Concentrations of gasoline and BTEX were highest from MW10, located near the original center of the groundwater contamination plume. Gasoline concentrations measured in monitoring wells were as follows:

Table 2- Hydrocarbon Concentrations			
Well No	TPH Concentration in Nov.'97 (mg/L)	TPH Concentration in Dec.'97 (mg/L)	TPH Concentration in Jan.'98 (mg/L)
MW-01	ND	ND	NA
MW-02	1.38	1.1	2.5
MW-03	ND	ND	NA
MW-04	4.56	0.61	1.4
MW-06	ND	ND	NA
MW-08	5.07	1.3	2.8
MW-09	1.65	0.43	1.8
MW-10	28.8	26	24
MW-14	ND	ND	NA
MW-15	ND	ND	NA
VMP01	ND	ND	ND
VMP02	15.8	NA	3.7
NGMW01	ND	ND	NA
NGMW06	ND	ND	NA

ND not detected, detection limit is 0.004 mg/L

## PART VIII

### Summary of Quarterly Monitoring Results (Continued)

Overall, concentrations of gasoline measured from the 14 wells **changed** from an average of **4.1 mg/L** (standard deviation of 8 mg/L) as gasoline in **November** to **5.2 mg/L** (standard deviation of 8.4 mg/L) in **January**. BTEX concentrations generally coincided with measured concentrations of gasoline since BTEX compounds are components of gasoline. (Refer to Part III for complete details).

Part VI presents the graphical results of water treatment concentrations collected during the quarter and Part IV presents the summary of analytical data collected. The effluent to POTW water sample result collected in **November and December** indicates hydrocarbons measured as gasoline well below the 25 ppm POTW discharge limit (**2.0 mg/L and 2.1 mg/L, respectively**). Effluent concentrations to the system have been consistently below the discharge limit for the past ten quarters of monitoring.

From **November through 3 December 1997**, extraction wells RW-1, RW-2, RW-3, RW-4, RW-9, and RW-10, RW-11, RW-12 were online. Recovery wells RW-11 and RW-12 lie within the area of highest concentration within the site.

The groundwater extraction and treatment system operated through the month of **November until 3 December**. The system was turned off on **3 December** for scheduled winter shutdown. The average effluent water concentration measured as gasoline over the period of **November through 3 December** was **2.0 mg/L**. The total effluent load of gasoline extracted from the groundwater over **26 days** is some **31 pounds** calculated using effluent concentration data and effluent totalizer readings between **8/15/97 and 11/10/97**.

#### Treatment System Results for Vapor

Part VII presents the graphical results of vapor treatment concentrations over time and Part IV the summary of analytical data collected from the treatment system. Concentrations of influent soil gas vapor as gasoline during **November and December** were measured at **480 ppmv and 1,200 ppmv, respectively**. This change in concentration is due to non-continuous operation in this period. As the number and location of active extraction wells are changed, the concentration of gasoline in the vapor will change accordingly. An estimated average flow of 85 cubic feet per minute (cfm) is processed through the system based on system air flow measurements. The total air flow processed during the quarter was some **2,995,200 cubic feet or 115,200 cubic feet per day (cfd)**.

The total vapor phase TPH treated over the quarter is some **445 pounds** based on the vapor concentration. To date, approximately **68,275 pounds** of volatile hydrocarbons have been removed from the recovery wells.

**JACOBS ENGINEERING**

March 12, 1998

Transmittal  
Tr# 98U003RECEIVED  
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U.S. EPA. REGION VIII  
EMERGENCY RESPONSE BRANCH

TO: Mr. Rich Haavisto  
Technical Manager  
U.S. Corps of Engineers  
Environmental Engineering Branch  
1325 J Street, 12th floor  
Sacramento, CA. 95814-2922

FROM: Mike Sajadi  
Project Manager  
Jacobs Engineering Group  
2525 Natomas Park Drive, Suite 370  
Sacramento, CA 95833

ON: Contract No. DACA05-92-D-0040, Delivery Order 15  
JEG Project No. 27-H103-15 Vernal,Utah - Vernal Naples Truck Stop

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1.		0	POLREP #55/JE #36	12 Mar 98

## REMARKS:

	<u>Kleinfelder</u>	<u>IT Corp</u>
<u>Jacobs</u>	R. Zollinger (S.L.C.)	A. Meyers (Ohio)
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R. Hergenrader *	<u>USACE</u>	<u>EPA</u>
K. Poquette*		
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Project Files	R. Haavisto (Sac)	
Contract Files*		

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